REMARKS

Applicant respectfully requests reconsideration of the present application in view of the reasons that follow. Claims 1-4, 6, 8-13, 15-20, 22, and 23 are pending in this application.

Rejections Under 35 U.S.C. § 103

In the Final Office Action dated June 26, 2006, Claims 1-3, 6-8, 10, 13, and 15-20 are rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,482,740 (Soininen et al.) in view of U.S. Patent No. 6,399,496 (Edelstein et al.) and U.S. Patent 6,749,689 (Bögel et al.). Claims 4 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Soininen et al., Edelstein et al., and Bögel et al., as applied to claim 1 above, and further in view of U.S. Patent No. 6,440,849 (Merchant et al.). Claims 9 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Soininen et al., Edelstein et al., and Bögel et al., as applied to claims 1 and 6 above, and further in view of U.S. Patent No. 6,380,083 (Gross). Claims 11-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Soininen et al., Edelstein et al., and Bögel et al., as applied to claim 10 above, and further in view of U.S. Patent No. 6,090,710 (Andricacos et al.). Applicants traverse all of these rejections.

Examiner's Response to Arguments

In the Final Office Action under the heading "Response to Arguments", the Examiner states:

> Applicant argues that Edelstein et al. do not teach increasing the grain size, and that Bogel et al. do not teach an increase in grain size due to chromium.
>
> Although Edelstein et al. and Bogel et al. do not explicitly state increasing the grain size due to chromium, these features are inherent in prior art's device, because addition of Calcium (Ca) or Chromium (Cr) increases grain size.

(Final Office Action dated June 26, 2006, pages 5-6.)

MPEP 2112 indicates that:

> "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. … The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) …
>
> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy,* 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)

The Examiner has not provided a basis in fact that addition of Calcium (Ca) or Chromium (Cr) *inherently* increases grain size. The Examiner makes the statement without any supporting evidence or citation. As discussed in the previous response, Edelstein et al. does not mention grain size at all. Bögel et al describes change in grain growth due to *annealing time* and *temperature*, not by the addition of an element. None of the references relied upon by the Examiner teach or suggest:

> "depositing a copper alloy material … including … at least one element for increasing grain size including Calcium (Ca) or Chromium (Cr)," required by claim 1, or
>
> "the ternary copper alloy via material includes an element with a characteristic for increasing grain size of the ternary copper alloy via," required by independent claims 10 and 17.

In a glossary of metallurgical terms available on the Internet at http://www.timken.com/timken_ols/steel/handbook/glossary.asp, a list of definitions is provided for "alloying elements." The definitions for "calcium" and "chromium" from that list are provided below. It should be noted that nothing in these definitions is indicated regarding increasing grain size—even though effects on grain size is mentioned for a number of other

elements in the list, including aluminum (Al) (control grain size), niobium (Nb) (finer grain size), nitrogen (N) (control grain size), and titanium (Ti) (control grain size). A print out of the list has been submitted herewith.

> **CALCIUM - Ca**
> is used in certain steels to control the shape, size and distribution of oxide and/or sulfide inclusions. Benefits may include improved ductility, impact strength and machinability.
>
> **CHROMIUM - Cr**
> is used in low alloy steels to increase 1) resistance to corrosion and oxidation, 2) high temperature strength, 3) hardenability, and 4) abrasion resistance in high carbon alloys. Straight chromium steels are susceptible to temper embrittlement and can be brittle.

Applicant's representative conducted numerous searches on the Internet to find evidence that the addition of Calcium (Ca) or Chromium (Cr) *inherently* increases grain size—no evidence could be found. A number of other references found in these searches are also provided herewith. **Applicant respectfully requests the Examiner provide evidence to support his assertion of inherency.** Without such evidence, the rejections of Claims 1-4, 6, 8-13, 15-20, 22, and 23 should be withdrawn and the pending claims allowed.

The rejection of Claims 1-3, 6-8, 10, 13, and 15-20 under 35 U.S.C. § 103(a) should be withdrawn because Soininen et al., Edelstein et al., and Bögel et al. do not teach all of the limitations of the rejected claims. For these same reasons, the rejection of Claims 4 and 22 based on Soininen et al., Edelstein et al., and Bögel et al. and further in view of Merchant et al. should be withdrawn. The rejection of Claims 9 and 23 based on Soininen et al., Edelstein et al., and Bögel et al. and further in view of Gross should be withdrawn. The rejection of Claims 11-12 based on Soininen et al., Edelstein et al., and Bögel et al and further in view of Andricacos et al. should be withdrawn.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2350. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2350. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2350.

Respectfully submitted,

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